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influence on future lexicographers must be at least confusing, and should even a small proportion of the terms proposed be adopted, the uninitiated might be led to believe that with a command of Anlage and Zug almost any idea could be expressed in German.

In one respect the English edition is a noteworthy advance over the German original. The latter is paged continuously and is concluded with a subject and an author's index. The English parts have each their own paging, a table of contents, and double indices, thus rendering them much more readily usable as reference books. It is to be regretted that this general improvement has not extended to the presswork. Unfortunately in this respect the English edition is decidedly behind the German. In the first and second parts the illustrations, particularly, lack the clearness of the German cuts, and in the third the muddiness of the figures is often a really serious defect. Notwithstanding these shortcomings, the unabridged translation of such a masterly work is a boon to the English-reading zoölogical student, and one can do no less than wish that good fortune may aid in the completion of so worthy a task.

P.

A Recent Book on Insects. — In *Our Insect Friends and Foes, How to Collect, Preserve, and Study Them* (G. P. Putnam's Sons, New York and London, 1899. xix, 377 pp., 225 illustrations), Miss Belle S. Cragin gives directions for collecting, raising, and preserving insects, brief notes on their structure, habits, and habitats, with more detailed notices of some of the commoner forms of hexapods and shorter accounts of related arthropods.

Miss Cragin's book shows a purpose so sincere, and her project is so praiseworthy, that it is especially unfortunate not to be able to commend her effort. The directions for the collection and preservation of insects, though not better than others equally available, do not seriously offend by what they contain or omit. The more detailed accounts, however, show so slight a personal knowledge with the subject that very little can be said in favor of the book as a guide to instruct young students or to quicken their interest in the study of insects.

The essential characteristics for a book on insects, written for young people, are an attractive literary style, clear, concise, and accurate statements arranged in logical, scientific sequence. Judged from this standpoint, Miss Cragin's book cannot be regarded as even moderately successful. It would be hard to find a book dealing with insects in which the orders and families are arranged in so confusing and unscientific a manner. Misleading and inaccurate statements are frequent. The Coleoptera are said to include over eleven thousand species; a statement that is true, but surely an unhappy way of recording that more than eleven thousand beetles are credited to America, north of Mexico; the larvæ of some snout beetles have jointed legs; the firefly, with luminous thoracic spots, is incorrectly placed in the Lampyridæ; the Hercules beetle is not the largest true insect; more than one Termite is found in North America, and the northern range of the species credited to that region is far beyond Massachusetts; all tropical Phasmidæ do not have wings that look like leaves.

The repetitious character of the text is especially tiresome, and the list of books for reference wholly inadequate.

Finally, the illustrations are very evenly bad; it would take much search to find a more atrocious series. Figs. 89 and 92 are transposed.

S. H.

Sheep Tick. — The gross anatomy and histology of the female genital tract of *Melophagus ovinus* are described in detail by Pratt (*Zeitschr. f. wiss. Zool.*, Vol. LXVI, pp. 16–42, Pls. II, III), completing and extending the work of Leuckart (1858). Each ovary consists of two ovarioles, possessing two follicles apiece, and both ovaries and ovarioles alternate in the production of the ova. From the germarium are produced follicular, nutritive, and egg cells; while the ovarioles are similar to those of Musca, and the peritoneal covering of the ovary is peculiar only in its thickness and extent. The fused proximal portions of the oviducts form a median vessel serving as a receptaculum seminis and lying in the virginal female in a plane perpendicular to that of the uterus, later at an acute angle to it. The ducts of the two pairs of milk glands, which provide nourishment for the larva during intrauterine development, open by a single opening into the uterus; the anterior of the two pairs is more or less rudimentary. The structure of the vagina is such as to permit of extreme distention at the time that the fully developed larva is extruded.

R. H. Wolcott.

Nauplius Stage of Penæus. — Although F. Müller announced as early as 1863 that Penæus emerged from the egg in its nauplius stage, this statement remained unconfirmed, notwithstanding the fact that Penæus has been studied by several investigators, till the past year when Kishinouye[1] rediscovered this stage in material collected on the Japanese coast.

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[1] Kishinouye, K. On the Nauplius Stage of Penæus. *Zool. Anz.*, Bd. xxiii, pp. 73, 74, 3 Figs., 1900.